

What is claimed is:

1. A mechanism for removably locking a sewer grate within its mounting frame, wherein the grate comprises a number of spaced parallel bars, and the mounting frame has a ledge structure and a downwardly extending side wall below the ledge structure: said locking mechanism comprising a nut retainer means affixed to the frame side wall, a threaded nut carried by said retainer means, an apertured plate disposed above the nut but below the grate; an upstanding suspension structure carried by the plate and at least partially encircling at least one of the grate bars, whereby the plate is attached to the grate, and a bolt extendable downwardly through the plate aperture into threaded engagement with the nut whereby the plate is removably attached to the frame via the nut and associated retainer.

2. The locking mechanism of claim 1, wherein said bolt comprises a head having a cylindrical side surface, an end surface, and a cavity extending from said end surface parallel to the cylindrical surface, said cavity comprising a plural number of internal wrench-turning flats, and an obstruction extending within the cavity space, whereby the bolt can be turned only by a wrench having external flats mated to the internal flats and a depression mated to the obstruction.

3. The locking mechanism of claim 2, wherein said obstruction comprises a pin extending within the cavity on the bolt axis.

4. The locking mechanism of claim 1, wherein said upstanding suspension structure comprises two channel elements spaced a distance corresponding to the spacing between the grate parallel bars; said apertured plate being adapted to span the space below two of the grate bars, said channel elements extending upwardly from said plate so that each channel element encircles one of the grate bars.

5. The locking mechanism of claim 4, wherein the aperture in said plate is located midway between the two channel elements.

6. The locking mechanism of claim 1, wherein said nut retainer means comprises an angle member having two leg elements extending right angularly relative to each other; one of said leg elements extending flatwise along the side wall of the frame; the other leg element extending parallel to the apertured plate.

7. The locking mechanism of claim 6 wherein said threaded nut is affixed to the lower surface of said other leg elements.

8. The locking mechanism of claim 6, and further comprising means for orienting said angle member on the frame side wall; said orienting means comprising a first hole in said one leg element, and a pin extending from the first hole into the mounting frame.

9. The locking mechanism of claim 1, wherein the aperture in said plate is elongated in a direction parallel to the plane of the grate bars, whereby the bolt can be aligned with the nut in spite of variations in grate bar location.

10. A mechanism for removably locking a sewer grate within its mounting frame, comprising a nut retainer means affixed to the frame below the grate; a threaded nut carried by said retainer means; a grate hold-down means extending downwardly through the grate; and a bolt having a head and a threaded shank; said bolt having its head engaged with the hold down means and its threaded shank in threaded engagement with the nut.

11. The locking mechanism of claim 10, wherein said grate hold down means comprises an apertured plate and two inverted U-shaped channel members extending upwardly from said plate and encircling of two parallel grate bars.

12. The locking mechanism of claim 10, wherein said nut retainer means comprises an angle member having two right angularly-related leg elements; one of said leg

elements being affixed to the mounting frame; the other leg element extending away from the mounting frame in close proximity to the undersurface of the grate.

13. The locking mechanism of claim 12, and further comprising means for orienting said angle member on the frame; said orienting means comprising a first hole in the frame, a second hole in said one leg element, and a pin extending from the first hole into the second hole.

14. A method of installing a sewer grate locking mechanism on a grate mounting frame, comprising:

- (a) mounting a drilling machine on a carriage,
- (b) suspending the carriage below a portable bed structure so that the carriage can move in a plane below the bed structure plane,
- (c) temporarily installing the bed structure on the aforementioned mounting frame,
- (d) moving the carriage in the space below the bed structure so that the drilling machine drills a hole in the frame,
- (e) removing the bed structure and associated carriage from the frame,
- (f) driving a pin part way into the hole formed in the frame,
- (g) mounting a grate locking component on the pin, and
- (h) welding the grate locking component to the frame.

15. The method of claim 14, wherein said locking component comprises an angle member having two right angularly-related leg elements, one of said leg elements having a hole therein; said step

- (g) being carried out so that said one element has its hole fitted on the pin, whereby the angle member is stably positioned on the frame during the welding

operation.

16. A method of installing a sewer grate locking mechanism on a sewer grate comprising:

- (a) positioning an apertured plate against one face of a sewer grate;
- (b) positioning two channel elements around two parallel bars of the grate so that said channel elements are engaged with the apertured plate; and
- (c) welding the plate to the channel elements so that the plate-channel element assembly becomes a part of the grate.

17. A method of installing a sewer grate backing mechanism on a mounting frame and sewer grate, comprising:

- (a) mounting a drilling machine on a carriage, and movably suspending the carriage from a portable bed structure;
- (b) temporarily installing the bed structure on the aforementioned mounting frame;
- (c) moving the carriage back and forth along the bed structure so that the drilling machine drills two holes in diametrically spaced areas of the frame;
- (d) removing the bed structure and associated carriage from the frame;
- (e) driving a locator pin part way into each hole in the frame;
- (f) mounting a nut retainer angle member on each pin, and then welding each angle member to the frame;
- (g) positioning two apertured plates against one face of a sewer grate;
- (h) positioning two sets of channel elements around selected parallel bars of the grate so that two of said channel elements have flanges thereof engaged with each plate;

(i) welding each set of channel elements to the associated plate so that each plate-channel element assembly becomes a part of the grate, and

(j) moving the grate onto the mounting frame so that each apertured plate is in vertical registry with one of the aforementioned angle members.

18. The method of claim 17, wherein steps (b) and (c) are carried out so that the position of the bed structure is reversed on the mounting frame during the two drilling operations, whereby the carriage moves in opposite directions in order to enable the drilling machine to form the two drilled holes.

19. The method of claim 16, wherein step (c) is effected by pulling a handle through a stroke distance appreciably greater than the necessary carriage motion stroke, whereby a relatively great operating force is applied to the carriage.